

Synthesis and Properties of Pyrrolidine Bases.
VII. Some Esters of 2-Methyl-N- β -oxyethylpyrrolidine

SOV/79-29-7-44/83

acids were obtained in this manner: 2-methyl-N- β -oxyethylpyrrolidinebenzoic acid (Va), o-nitrobenzoic acid (Vb), p-bromobenzoic acid (Vv), p-phenylacetic acid (Vg), cinnamic acid (Vd), and salicylic acid (Ve). The hydrochlorides of these esters, with the exception of (Vg), were tested pharmacologically. They had a hypotensive effect on dogs (lowering the normal arterial blood pressure by 13-45% for 5-33 min). The introduction of substituents into the o- and p-position of the benzene ring had no substantial effect on the hypotensive activity. The pharmacological properties of the esters were tested at the Chair of Pharmacology of the Minskiy meditsinskiy institut (Minsk Institute of Medicine). There are 1 table and 10 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 16, 1958

Card 2/2

5 (3)

AUTHORS:

Kost, A. N., Sheyman, B. M.,
Terent'yev, A. P.

SOV/79-29-7-45/83

TITLE:

Synthesis With the Aid of the Nitrile of Acrylic Acid (Sintezy s pomoshch'yu nitrila akrilovoy kisloty). XXXIII. Cyanoethylation of n-Cresol (XXXIII. Tsianetilirovaniye n-krezola)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2310 - 2314 (USSR)

ABSTRACT:

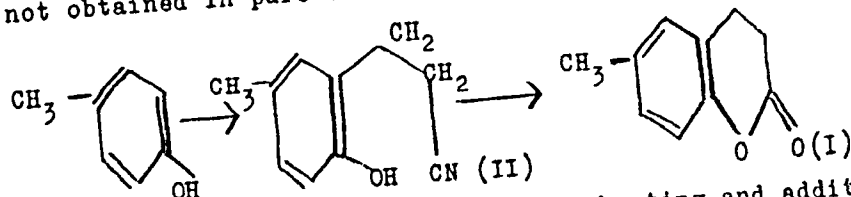
The authors investigated the synthesis of 6-alkylcoumarins, starting with the corresponding n-alkylphenols and acrylonitrile and examined the conditions necessary for the reaction of n-cresol with acrylonitrile in the presence of $AlCl_3$. No reaction took place below 10° . CCl_4 solution had no effect at these temperatures. In nitrobenzene solution $AlCl_3$ caused intense resinification. An equimolar amount of n-cresol and acrylonitrile without a solvent was saturated with HCl and then an equimolar amount of $AlCl_3$ added. After heating the reaction mixture for 1 hour at 80° the yield was 16%. Half of the product separated as 6-methyl-3,4-dihydrocoumarin (I), the other

Card 1/3

Synthesis With the Aid of the Nitrile of Acrylic
Acid. XXXIII. Cyanoethylation of n-Cresol

SOV/79-29-7-45/83

half, a fraction boiling at $128-133^{\circ}$ (at 10 mm), was a mixture of equal amounts of (I) and, apparently, (II), which was not obtained in pure state.



The yield did not increase on further heating and addition of more AlCl₃ and acrylonitrile. When heated for a short time to 200° a liquid fraction only was obtained, boiling at $128-133^{\circ}$ (at 10 mm). The longer period of reaction therefore leads to lactone (I). When propionitrile was used instead of acrylonitrile, molar proportions of the components being maintained, the yield of lactone (I) rose to 41.4% and 4.3% of nitrile (II) were obtained. The melting point of (I) differs from that given in publications. The compound (I) synthesized by the authors -

Card 2/3

Synthesis With the Aid of the Nitrile of Acrylic
Acid. XXXIII. Cyanoethylation of n-Cresol

SOV/79-29-7-45/83

contrary to the results given in reference 6 - exhibits typical
properties of 3,4-dihydrocoumarin (Scheme 2 with interpretation).
There are 11 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 18, 1958

Card 3/3

5(3)
 AUTHORS: Grinev, A. N., Yermakova, V. N., Vrotek, Ye., Terent'yev, A. P. SOV/79-29-8-74/81
 TITLE: Investigations in the Field of Quinones. XXVIII. Synthesis of the 5-Oxyindole Derivatives
 PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2777 - 2782 (USSR)
 ABSTRACT: The authors were interested in the synthesis of serotonin analogues (Ref 6) and the growth stimulants of plants (Refs 7,8) based on 5-oxyindole derivatives, and continued their previously not quite successful investigations (Refs 1-5) by trying to increase the indole derivative yield. They presupposed that the water forming in the course of the condensation process hydrolyzes the β -aminocrotonate (Scheme 1). The separation of ammonia and the amines, however, effects a polymerization of the initial quinone and other side reactions. In order to bind the water which has a detrimental effect, the anhydride of acetic acid and zinc chloride were used, but did not lead to a higher indole yield. In order to remove the water from the reaction mass, the azeotropic distillation with dichloro-

Card 1/2

Investigations in the Field of Quinones. XXVIII. Synthesis SOV/79-29-8-74/91
of the 5-Oxyindole Derivatives

ethane was used in the reaction process which led to a considerably higher yield. Compounds (I) - (VII) were obtained. In the methylation of (VI) with dimethylsulphate (VIII) was obtained. In order to achieve the synthesis of new growth stimulants of plants, the reaction of 5-oxyindoles with chloroacetic acid and a bromoacetate was tried. Under the influence of the acid on (II) in the presence of a 40% soda solution a good yield of compound (IX) was achieved. The condensation of the other 5-oxyindole derivatives only resulted in the initial indoles and in resins similar to polyglycol. The reaction of the phenolates of the 5-oxyindole derivatives with ethylbromoacetate is normal. A high yield of the substituted esters (X), (XI), and in the hydrolysis of esters, of the indolyl-5-oxyacetic acids (XII), (XIII), (XIV) was obtained. The table shows the derivatives of 5-oxyindole. There are 1 table and 10 references, 9 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 2, 1958
Card 2/2

SOV/79-29-8-73/81

5(3), 5(4)
AUTHORS:

Grinev, A. N., Klyagina, A. P., ~~Terent'ev, A. P.~~

TITLE:

Investigations in the Field of Quinones. XXVII. Synthesis of the Arylnaphthoquinones and Their Reactions With Sodium Cyanide

PERIODICAL:

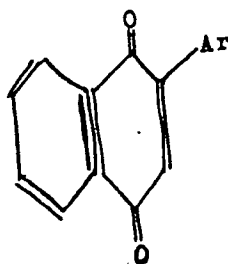
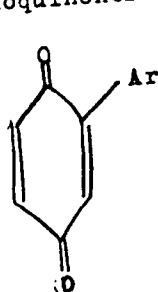
Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2773 - 2777 (USSR)

ABSTRACT:

Until recently the question of the influence of the electric donor-acceptor properties in the quinone nucleus upon the reactivity, the type of process, and its orientation remained unsolved. The difficulties encountered in the work are due to the fact that the reactions of the quinone series are, as a rule, accompanied by side reactions, an isomerization and decomposition of the intermediate products, and by redox processes. The non-existence of preparative synthesis methods of the substituted p-quinones also have an effect. In the present paper the synthesis of the compounds (V)-(VIII) from the aryl-1,4-benzoquinones (I)-(IV) and divinyl according to the method developed by Grinev and cooperators (Ref 1):

Card 1/3

Investigations in the Field of Quinones. XXVII. Synthesis of the Arylnaphthoquinones and Their Reactions With Sodium Cyanide SOV/79-29-8-73/81



where (I) $\text{Ar}=\text{C}_6\text{H}_5$
 (II) $\text{Ar}=\text{C}_6\text{H}_4\text{CH}_3$ -n
 (III) $\text{Ar}=\text{C}_6\text{H}_4\text{OCH}_3$ -n
 (IV) $\text{Ar}=\text{C}_6\text{H}_4\text{NO}_2$ -n
 (V) $\text{Ar}=\text{C}_6\text{H}_5$
 (VI) $\text{Ar}=\text{C}_6\text{H}_4\text{CH}_3$ -n
 (VII) $\text{Ar}=\text{C}_6\text{H}_4\text{OCH}_3$ -n
 (VIII) $\text{Ar}=\text{C}_6\text{H}_4\text{NO}_2$ -n

The aryl-1,4-benzoquinones (I)-(IV) were synthesized with high yields by the arylation of the *p*-benzoquinone with diazo compounds in a way different from the German patent (Ref 2) only by adding sodium acetate to the quinone solution even before mixing with the diazo compound. The authors assume that the effect of the aryl substituent might favor the reaction of electric donor-acceptor affiliation. Therefore the reaction

Card 2/3

Investigations in the Field of Quinones. XXVII. Synthesis SOV/79-29-8-73/81
of the Arylnaphthoquinones and Their Reactions With Sodium Cyanide

of the 2-aryl-1,4-naphthoquinones with NaCN was carried out (Scheme 1). This reaction took place by a gradual addition of the quinones dissolved in dioxan to the aqueous-alcoholic solution of the sodium cyanide in a nitrogen gas bag. The binding of NaCN to compound (III) is particularly easily effected. For the other 2-aryl-1,4-naphthoquinones small amounts of resins form in the reaction. At the reaction of *m*-benzo-1,4-naphtho- and 2-methyl-1,4-naphthoquinone with NaCN no cyanohydroquinones were separated. The structure of the 2-aryl-3-cyanonaphthohydroquinones was confirmed by oxidation into the corresponding quinones, analysis, and qualitative reactions (Scheme 2) (4 Tables). There are 4 tables and 7 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: July 2, 1958

Card 3/3

5(3)
 AUTHORS: Terent'yev, A. P., Preobrazhenskaya, M. N., Sorokina, G. M.
 TITLE: Introduction of Substituents Into the Benzene Ring of Indole.
 V. Synthesis of the Ketones of the Indole Series (Ref 1).
 PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2875-2881 (USSR)
 ABSTRACT: The present paper describes the synthesis of the indoles acylated in position 5, by dehydrogenation of the respective indolines. The behavior of indolines in the Friedel-Crafts reaction had hitherto scarcely been investigated (Refs 1-6). Initial products were 1-acetyl indoline (IV) and 1-acetyl-2-methyl indoline (V). Both these compounds were caused to react with acetyl chloride or chloroacetyl chloride according to F. Kunckell (Ref 7) in carbon disulphide medium and with $AlCl_3$ as catalyst (Reaction Scheme 1). 1,5-diacyl indolines (VI), (VII), and 1-acetyl-5-chloroacetyl indolines (VIII), (IX) were obtained in high yields. Aside from compound (VIII), the reaction of compound (IV) with chloroacetyl chloride and $AlCl_3$ yields a small amount of a product (X) which is probably an isomer of compound (VIII). The hydrolysis of the obtained 1,5-diacyl indolines with diluted hydrochloric acid yielded

Card 1/3

SOV/79-29-9-15/76

Introduction of Substituents Into the Benzene Ring of Indole. V. Synthesis of the Ketones of the Indole Series (Ref 1)

5-acetyl indoline, 5-chloroacetyl indoline, 5-acetyl-2-methyl indoline, and 5-chloroacetyl-2-methyl indoline (XI-XIV) (yield 80-90%) (Reaction Scheme 2). The following indoles were obtained when boiling the corresponding 5-acyl indolines with chloroaniline in xylene: 5-acetyl indole, 5-chloroacetyl indole, 5-acetyl-2-methyl indole, 5-chloroacetyl-3-methyl indole (XV-XVIII). The Beckmann rearrangement of oxime of 5-acetyl indole yielded 5-acetamino-1-acetyl indoline, thus proving the structure of the ketones of the indole and indoline series obtained. Compounds (XIII, XIV) irritate the skin and excite tears. The infrared absorption spectra of indolines differ from those of the obtained indoles. The spectra of ketones, taken with the spectrophotometer of type SF-4, of the indole series are identical (Figs 1, 2, 3). In the Friedel-Crafts reaction of 1-acetyl indoline with chloroacetyl chloride a mixture is formed of 1-acetyl-5-chloroacetyl indoline and another isomer in the ratio of 9 : 1. Reduction of 5-acetyl indoline or 5-chloroacetyl indoline according to Klemmensen leads to 5-ethyl indoline. There are 3 figures, 3 tables, and 11 references, 3 of which are Soviet.

Card 2/3

SOV/79-29-9-15/76
Introduction of Substituents Into the Benzene Ring of Indole. V. Synthesis
of the Ketones of the Indole Series (Ref 1)

ASSOCIATION: Moskovskiy gosudarstvennyy universitet
(Moscow State University)

SUBMITTED: July 3, 1958

Card 3/3

5(3)
AUTHORS:

SOV/79-29-9-70/76
Potapov, V. M., Terent'yev, A. P., Sarybayeva, R. I.

TITLE:

Stereochemical Investigations. VI. Schiff's Bases From Optically Active α -(p-Xylyl)-ethyl Amine

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 3139 - 3141 (USSR)

ABSTRACT:

The authors continue their previous investigations (Refs 1,2) and synthesize a number of Schiff's bases from α -(p-xylyl)-ethyl amine. Regarding the optical activity, there are some differences in both series in spite of great similarity of these bases with those of α -phenyl-ethyl amine. It is remarkable that the former bases, depending upon the solvent, change the value of rotation considerably more than the formerly described bases of α -phenyl-ethyl amine. With the exception of two Schiff's bases, the values of molecular rotation of α -(p-xylyl)-ethyl amine derivatives are in most cases noticeably lower than those of the α -phenyl-ethyl amine derivatives. Otherwise Schiff's bases of both series are very similar to one another, which is shown especially qualitatively by equal intensification of the optical activity depending on the nature of the

Card 1/2

Stereochemical Investigations. VI. Schiff's Bases From SCV/79-29-9-70/76
Optically Active α -(p-Xylyl)-ethyl Amine

substituent in the aldehyde ring. α -(p-Xylyl)-ethyl amine in its optically active form was obtained from its racemate by way of the diastereoisomeric salts with methyl sulphuric acid (Ref 3). A much better separation was achieved with greater amounts of diastereoisomeric salts. The data on the optically active Schiff's bases obtained are listed in the table. The determinations were made at room temperature. If the initial amine was not quite pure optically, the Schiff's base was purified by distillation only, since it had to be feared that the optical degree of purity could change in recrystallization. There are 1 table and 3 Soviet references.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: August 4, 1958

Card 2/2

Investigation of the Absorption Spectra of the
Alkylamines of o-Oxycarbonyl Compounds

SOV/20-125-4-32/74

as acetyl acetone, salicylaldehyde, o-oxyacetophenone, β -oxynaphthaldehyde and their alkylamines (Ref 3). All mentioned compounds form hydrogen bonds of different type and strength. In order to determine the initially mentioned changes in the spectrum which are due to the formation of a hydrogen bond, the electron spectra were investigated in different solvents. It was found that in addenda containing only hydrogen as donor atoms the hydrogen bond does not cause a remarkable variation of the spectrum character: only some main bands are shifted in the direction of the long waves. However, in addenda as alkylamines of salicylaldehyde and o-oxyacetophenone a new bond appears within the range of 25000 cm^{-1} . Its occurrence and intensity are determined by the used solvents. In inert solvents (isooctane, carbon tetrachloride) the spectra of alkylamines are similar to those of oxygen compounds not only with respect to their character but also with respect to the position of the absorption bands. In this case the hydrogen bond appears also as a shift of the main bands by $1500\text{-}2000\text{ cm}^{-1}$ in the red direction (Table 1). There is a great difference

Card 2/4

Investigation of the Absorption Spectra of the
Alkylamines of o-Oxycarbonyl Compounds

SOV/20-125-4-32/74

between the spectra of the two last mentioned alkylamines in polar solvents and those in inert solvents, and thus there is also a considerable difference between them and the spectra of oxygen compounds. The above investigation shows that a direct comparison of the spectra of such addenda as alkylamines of salicylaldehyde and o-oxyacetophenone with the spectra of the inner-complex compounds produced from them is permissible if spectra in polar solvents are concerned. As the inner-complex compounds of these two substances are as a rule not soluble in inert solvents and as it is necessary to take their spectra in chloroform and alcohol for the purpose of determining the form of bond it is advisable to make use of the comparison between alkylamines and spectra in not polar substances. In the case of "ionic" compounds it is of advantage to determine in not polar solvents the relative strength as a function of the spectrum of the methyl ester of the addendum concerned, i. e. as a function of such a spectrum that is not changed under the action of inner- or intramolecular interactions. There are 3 figures, 2 tables, and 5 references, 1(2) of which are Soviet.

Card 3/4

S/191/60/000/005/018/020
B004/B064

AUTHORS: Terent'yev, A. P., Luskina, B. M., Syavtsillo, S. V.
TITLE: Determination of the Carbon Content in Silicon - Copper Melts
PERIODICAL: *Plasticheskiye massy*, 1960, No. 5, pp. 65-66

TEXT: This paper describes a method of determining the carbon content in silicon - copper melts, used for the synthesis of alkyl- and aryl chlorosilanes. After synthesis the melts contain up to 20% C. This carbon content is characteristic of the degree of exploitation of the melt. The following data are given for its determination: weighed portion of the melt 0.1 - 1.5 g, addition of 10 ml of concentrated H_2SO_4 free from organic impurities, addition of 2 - 3 ml of chromic acid, and heating to 150 - 160°C in pure oxygen current (50 - 60 ml/min). The oxidation products are heated in a porcelain tube containing chromium oxide on pumice to 700 - 750°C, and subsequently passed through different solutions to absorb their components: hydrazine hydrate brought to pH = 6 with acetic acid (absorption

Card 1/2

Determination of the Carbon Content
in Silicon - Copper Melts

S/191/60/000/005/018/020
B004/B064

of chlorine compounds), concentrated sulfuric acid (absorption of water).
and a tube filled with Anhydron and Ascarite, in which CO_2 is adsorbed.
The analysis takes 30 minutes. N. G. Korovina made a comparison with other
methods of analysis, and obtained good agreement. There are 1 figure,
2 tables, and 4 references: 3 Soviet and 1 British.

Card 2/2

88541

S/190/60/002/010/016/026
B004/B054

5-3700

1282, 1153, 1164

AUTHORS:

Terent'yev, A. P., Rode, V. V., and Rukhadze, Ye. G.

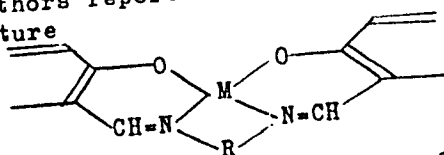
TITLE:

Investigations in the Series of Chelate Polymers. I.
Synthesis of Chelate Polymers on the Basis of 5,5'-Methylene
Bis-salicyl-aldehyde

PERIODICAL:

Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 10,
pp. 1557-1563

TEXT: The authors report on the synthesis of chelate polymers of the
general structure



R = 2H, $-(CH_2)_2-$, $-(CH_2)_6-$, and $o-C_6H_4-$. Schiff's bases of 5,5'-methylene
bis-salicyl-aldehyde and ammonia, ethylene diamine, hexamethylene diamine,
and o-phenylene diamine were used as initial substances. A total of 23
chelate compounds were synthesized from the polymers of these Schiff's
Card 1/2

Investigations in the Series of Chelate
Polymers. I. Synthesis of Chelate Polymers
on the Basis of 5,5'-Methylene Bis-salicyl-
aldehyde

88541
S/190/60/002/010/016/026
B004/B054

bases with salts of Zn^{2+} , Cu^{2+} , Ni^{2+} , Co^{2+} , Fe^{2+} , Cd^{2+} ; the analyses of these compounds are given in a table. In the experimental part in which V. S. Shmarlin cooperated, the authors report on an improvement of the synthesis of 5,5'-methylene bis-salicyl-aldehyde. They obtained a yield of 47-53% from salicyl-aldehyde and formalin, a yield of 65% with α -polyoxymethylene, and a yield of 75% with paraform. The authors describe the syntheses of poly-5,5'-methylene bis-salicylal ethylene diamine, poly-5,5'-methylene bis-salicylal hexamethylene diimine, and poly-5,5'-methylene bis-salicylal-o-phenylene diimine, as well as the synthesis of the chelate polymers. All compounds were synthesized for the first time, except the o-phenylene diimine compound. There are 1 table and 28 references: 12 Soviet, 12 US, 3 German, and 1 Italian.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: May 5, 1960

Card 2/2

TERENT'YEV, A.P.; KOSIN'SKIY, M.

Photometric determination of cyclohexanone oxime in the presence of
caprolactam. Zhur.anal.khim. 15 no.2:234-237 Mr-Ap '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Cyclohexanone) (Hexamethylenimine)

BAZILEVSKAYA, N.A.; BRAGINA, K.K.; GRINEV, A.N.; TERENT'YEV, A.P.

New stimulants of plant growth. Vest.Mosk.un.Ser 6: Biol., pochv.
15 no.3:33-46 My-Je '60. (MIRA 13:7)

1. Botanicheskiy sad, laboratoriya spetsial'nogo organicheskogo
sinteza im. S.S. Nametkina i kafedra organicheskoy khimii.
Moskovskogo universiteta.
(Growth promoting substances)

TERENT'YEV, A.R.; OBTEMERANSKAYA, S.I.; BUZLANOVA, M.M.; VLASOVA, T.Ye.

Determination of carboxylic acid anhydrides by means of hexamethylenimine and piperidine. Vest. Mosk un. Ser. 2: Khim. 15 no.4:71-73
Jl-Ag '60. (MIRA 13:9)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Anhydrides) (Hexamethylenimine) (Piperidine)

5.3610

77376
SOV/79-30-1-37/78

AUTHORS: Grinyev, A. N., Venevtseva, N. K., Terent'yev, A. P.

TITLE: Investigation in the Field of p-Quinones. XXIX.
Azo Coupling of 2,5-bis(Dimethylamino)-1,4-benzoquinone
and 2-(Dimethylamino)-1,4-naphthoquinone

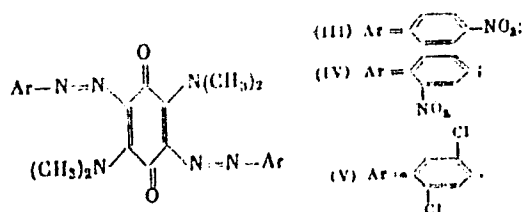
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 183-185
(USSR)

ABSTRACT: Azo coupling of quinones containing other electrodonor substituents was studied. 2,5-bis-(Dimethylamino)-1,4-benzoquinone was coupled with some diazonium salts, and 2,5-bis-(dimethylamino)-3,6-bis-(p-nitrophenylazo)-1,4-benzoquinone (III), 2,5-bis(dimethylamino)-3,6-bis-(o-nitrophenylazo)-1,4-benzoquinone (IV), and 2,5-bis-(dimethylamino)-3,6-bis-(2',5'-dichlorophenylazo)-1,4-benzoquinone (V) were obtained, in high yield.

Card 1/3

Investigation in the Field of p-Quinones.
XXIX.

77376
SOV/79-30-1-37/78



Diazonium salts were reacted with 2-dimethylamino-1,4-naphthoquinone, and instead of the expected products of azo coupling of 2-dimethylamino-1,4-naphthoquinone, the derivatives of 2-hydroxy-1,4-naphthoquinone were obtained (2-hydroxy-3-(p-nitrophenylazo)-1,4-naphthoquinone (VI) and 2-hydroxy-3-(o-nitrophenylazo)-1,4-naphthoquinone (VII)).

Card 2/3

5.3610

77879
SOV/79-30-2-30/78

AUTHORS: Grinyev, A. N., Hun Shchi-tsun, Terent'yev, A. P.

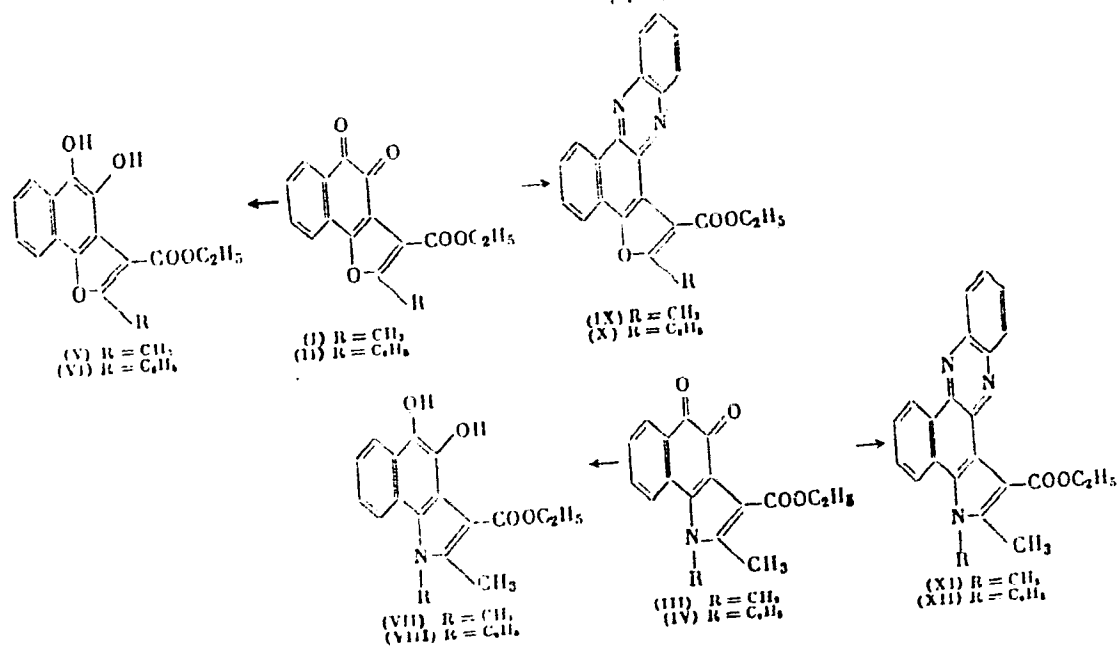
TITLE: Investigation in the Field of Quinones. XXX. Synthesis of o-Quinones of the Naphthofuran and Benzindole Series

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 501-505 (USSR)

ABSTRACT: Chromic acid reacts with 5-hydroxynaphthofuran and 5-hydroxybenzindole forming o-quinones of naphthofuran (I,II) and benzindole (III, IV) series. The obtained products are reduced with sodium bisulfite to corresponding 4,5-dihydroxyfurans (V, VI) and 4,5-dihydroxybenzindoles (VII, VIII). With o-phenylenediamine they form quinoxalino-(2,3e)-naphthofuran (IX, X) and quinoxalino-(2,3-e)-benzindole (XI, XII) derivatives.

Card 1/6

77879 SOV/79-30-2-30/18



Card 2/6

77873 SOV/19-30-2-30/78

o-Quinones-4,5 Properties

Starting material	Obtained o-quinone	Yield in %	mp
2-methyl-3-carbethoxy-5-hydroxy-naphthofuran	2-methyl-3-carbethoxy-4,5-dihydroxynaphthofuran (I)	74	decomposes over 50°
2-phenyl-3-carbethoxy-5-hydroxy-naphthofuran	2-phenyl-3-carbethoxy-4,5-dihydroxyfuran (II)	77	191-191.5° (alcohol + + dioxane)
1,2-dimethyl-3-carbethoxy-5-hydroxybenzindole	1,2-dimethyl-3-carbethoxy-4,5-dihydroxybenzindole (III)	98	191-192° (alcohol)
1-phenyl-2-methyl-3-carbethoxy-5-hydroxybenzindole	1-phenyl-2-methyl-3-carbethoxy-4,5-dihydroxybenzindole (IV)	70	217° (alcohol)

Card 3/6

77870 SOV/19-30-2-30/18

4,5-Dihydroxynaphthofurans
and 4,5-Dihydroxybenzindoles properties

Starting material	Obtained 4,5-dihydroxy derivatives	Yield in %	mp (alcohol)
I	2-methyl-3-carbethoxy-4,5-dihydroxy-naphthofuran (V)	52	165-166°
II	2-phenyl-3-carbethoxy-4,5-dihydroxy-naphthofuran (VI)	92	154-155°
III	1,2-dimethyl-3-carbethoxy-4,5-dihydroxy-benzindol (VII)	quan- tita- tive	dec. over 150°
IV	1-phenyl-2-methyl-3-carb- ethoxy-4,5-dihydroxybenzindol	quan- tita- tive	138-139°

Card 4/5

77879 SOV/79-30-2-30/78

Quinoxalino-(2,3-e)-naphthofuran (IX, X)
and Quinoxalino-(2,3-e)-benzindol Derivatives

Starting material	Obtained product	Yield in %	mp
I	2-methyl-3-carbethoxyquinoxalino-(2,3-e)-naphthofuran (IX)	quantitative	194°
II	2-phenyl-3-carbethoxyquinoxalino-(2,3-e)-naphthofuran (X)	87	198-198.5°
III	1,2-dimethyl-3-carbethoxyquinoxalino-(2,3-e)-benzindole (XI)	93	212-212.5°
IV	1-phenyl-2-methyl-3-carbethoxyquinoxalino-(2,3-e)-benzindole (XII)	85	203.5-204°

Card 5/6

Investigation in the Field of
Quinones. XXX. Synthesis of
o-Quinones of the Naphthofuran
and Benzindole Series

77879
SOV/79-30-2-30/78

There are 3 tables; and 3 Soviet references.

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy
universitet)

SUBMITTED: February 28, 1959

Card 6/6

5.3410, 5.3100

77016

SOV/79-30-2-67/78

AUTHORS: Potapov, V. M., Terent'yev, A. P.

TITLE: Stereochemical Investigations. VII. Schiff Bases From Optically Active α -Phenylpropylamine

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 666-670 (USSR)

ABSTRACT: The authors reported previously (this Journal, 1958, Vol 28, p 1161; ibid., Vol 28, p 3321; ibid., 1959, Vol 29, p 3139) the optical investigation of Schiff bases obtained from optically active amines (such as α -phenylethylamine (I), and others) with CH_3 as one of the substituents at the center of asymmetry. Amines with other aliphatic radicals were investigated in the present study.

α -Phenylpropylamine (II) was obtained by Leuckart reductive amination of propiophenone. The resolution of (II) was made with (-)-malic acid in ethanol, and the Schiff bases were obtained from the optically active (II) by heating it with the corresponding aromatic aldehydes in benzene (preparations 1-8) or methanol (preparations 9-11). The molecular rotation $[\text{M}]_D$ of the (II)-

Card 1/3

Stereochemical Investigations. VII. Schiff
Bases From Optically Active α -Phenyl-
propylamine

77916

SOV/79-30-2-67/78

-derived Schiff bases (recalculated for optically pure (+)
- α -phenylpropylamine) and of (I)-derived bases are given in Table
1.

Table 1. Molecular rotations of
Schiff bases from (+)- α -phenyl-
propylamine $C_6H_5-CH(C_2H_5)-N=CH-X$.

Key to Table 1. (A) Preparation Nr; (B)
 M_D in benzene; (C) M_D without solvent;
(D) M_D for derivatives of (I) in benzene.

A	X	B	C	D
1	$o-NO_2C_6H_4$	+382°	+315°	+227°
2	$o-OCH_3C_6H_4$	+145	+151	+ 85
3	$HC-CH$ $\parallel \quad \parallel$ $-C \quad CH$ $\diagup \quad \diagdown$ O	-123	-176	-132
4	C_6H_5	-165	-165	-168
5	$p-CH_3C_6H_4$	-171	—	-234
6	$p-ClC_6H_4$	-244	—	-258
7	$p-OCH_3C_6H_4$	-259	—	-248
8	$p-NO_2C_6H_4$	-271	-219	-271
9	$p-OHC_6H_4$	—	—	—
10	$o-OHC_6H_4$	-399	-206	-402
11	$p-N(CH_3)_2C_6H_4$	-468	—	-460

Card 2/3

Stereochemical Investigations. VII. Schiff
Bases From Optically Active C₁-Phenyl-
propylamine

77916
SOV/79-30-2-67/78

The rotational effect of the substituents in (I)- and (II)-derived Schiff bases was identical as to the direction in all bases, and practically identical as to the magnitude, in most of the bases. The exception were bases with o-nitro- and o-methoxy-groups (compounds 1 and 2) where the difference in $[M]_D$ values was considerable. The rotation decreased by 8 to 12 arc degrees in para-series with rising temperature (from 20 to 80°C), and by 50 to 60 arc degrees in ortho-compounds (1) and (10). There are 3 tables; and 4 references, 1 U.K., 3 Soviet. The U.K. reference is: A. J. Little, J. McLean, F. J. Wilson, J. Chem. Soc., 1949, 33C. Moscow State University (Moskovskiy gosudarstvennyy universitet)

ASSOCIATION:

SUBMITTED: February 28, 1959

Card 3/3

0.3010

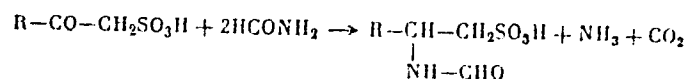
THESE
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AUTHORS: Potapov, V. M., Terebenyev, A. P., Iordanskaya, V. N.

TITLE: Synthesis of Aliphatic Taurines by the Leuckart Reaction

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30 Nr 3, pp 1043-1047 (USSR)

ABSTRACT: A series of aliphatic β -ketosulfonic acids (see Table 1) was prepared by the action of dioxane-sulfur trioxide on aliphatic ketones and converted into taurine homologs (see Table 2) by reductive amination according to Leuckart:



Card 1/4

Synthesis of Aliphatic Sulfones by the Leukart
Reaction

78408

SOV/79-30-3-01/10

Table 1. Key: Aliphatic β -ketosulfonic acids.
(a) Ketosulfonic acid (b) Yield (%).

a	b
$\text{CH}_3\text{COCH}_2\text{SO}_3\text{H}$	84.0
$\text{CH}_3\text{COCH}(\text{CH}_3)\text{SO}_3\text{H}$	72.5
$\text{CH}_3\text{COCH}(\text{iso-C}_3\text{H}_7)\text{SO}_3\text{H}$	87.2
$\text{CH}_3\text{COCH}(\text{C}_4\text{H}_9)\text{SO}_3\text{H}$	74.5
$\text{C}_2\text{H}_5\text{COCH}(\text{CH}_3)\text{SO}_3\text{H}$	67.4
$\text{C}_2\text{H}_5\text{COCH}(\text{C}_2\text{H}_5)\text{SO}_3\text{H}$	80.0
$\text{iso-C}_3\text{H}_7\text{COCH}(\text{CH}_3)\text{SO}_3\text{H}$	78.6

Card 2/4

Synthesis of Aliphatic Taurines by the Leukart
Reaction

7830M

SOV/79-30-3-62/69

Table 2. Key: Aliphatic homologs of N-formyltaurine.
(a) Taurine; (b) Yield (%), (c) S-benzylthiuronium salt;
(d) Mp; (e) Formula (f) N content (%); (g) Found;
(h) Calculated

	a	b	d	e	f	g	h
$\text{CH}_3\text{CHCH}_2\text{SO}_3\text{H}$ NHCHO	---	---	194-195	$\text{C}_{12}\text{H}_{15}\text{O}_4\text{N}_3\text{S}_2$	12.62, 12.83	12.63	12.63
$\text{CH}_3\text{CHCH}(\text{CH}_3)\text{SO}_3\text{H}$ NHCHO	38.3	152-152.5	---	$\text{C}_{13}\text{H}_{21}\text{O}_4\text{N}_3\text{S}_2$	11.81, 11.94	11.81	12.00
$\text{CH}_3\text{CHCH}(\text{iso-C}_3\text{H}_7)\text{SO}_3\text{H}$ NHCHO	24.0	216-217	---	$\text{C}_{15}\text{H}_{23}\text{O}_4\text{N}_3\text{S}_2$	11.18, 11.35	11.18	11.19
$\text{CH}_3\text{CHCH}(\text{C}_5\text{H}_{11})\text{SO}_3\text{H}$ NHCHO	20.0	179.5-180	---	$\text{C}_{17}\text{H}_{29}\text{O}_4\text{N}_3\text{S}_2$	10.38, 10.53	10.38	10.41
$\text{C}_2\text{H}_5\text{CHCH}(\text{CH}_3)\text{SO}_3\text{H}$ NHCHO	16.0	178.5-179	---	$\text{C}_{14}\text{H}_{23}\text{O}_4\text{N}_3\text{S}_2$	11.74, 11.65	11.74	11.62
$\text{C}_3\text{H}_7\text{CHCH}(\text{C}_2\text{H}_5)\text{SO}_3\text{H}$ NHCHO	---	118-119	---	$\text{C}_{16}\text{H}_{27}\text{O}_4\text{N}_3\text{S}_2$	10.48, 10.79	10.48	10.78
$\text{iso-C}_3\text{H}_7\text{CHCH}(\text{CH}_3)_2\text{SO}_3\text{H}$ NHCHO	42	182-183	---	$\text{C}_{16}\text{H}_{27}\text{O}_4\text{N}_3\text{S}_2$	11.64, 11.50	11.64	10.78

Card 3/4

Synthesis of Aliphatic Taurines by the Leukart
Reaction

78308

SOV/79-30-3-62/69

The process of reductive amination was studied by the analytical method; i.e., by determination of the CO_2 , SO_4 , and H_2S formed. It was shown that on sulfonation of ketones of type $\text{CH}_3\text{-CO-CH}_2\text{-R}$ the sulfo group enters at the methylene group. There are 3 tables; and 6 references, 1 U.S., 1 U.K., 1 French, 3 Soviet. The 2 U.S. and U.K. references are: S. Zuffanti, J. Am. Chem. Soc., 62, 1044 (1940); J. Catch, D. Elliot, D. Hey, E. Jones, J. Chem. Soc., 272 (1948).

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: January 5, 1959

Card 4/4

S/079/60/030/04/36/080
B001/B016

AUTHORS: Terent'yev, A. P., Preobrazhenskaya, M. N.

TITLE: Introduction of Substituents Into the Benzene Ring of
Indole. VI. Synthesis of Sulfo Derivatives of Indole and
Indoline (Ref. 1)

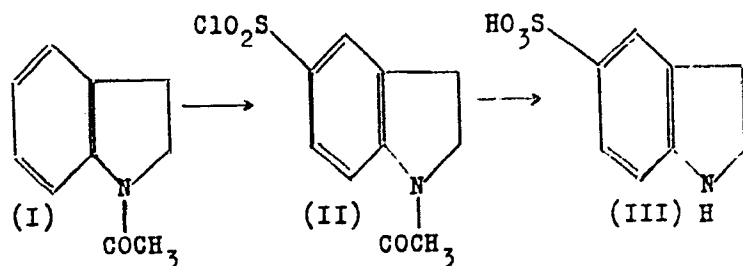
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 4, pp. 1218-1222

TEXT: In the present paper, the authors synthesized the 5-indole
sulfamides by dehydrogenation of the corresponding 5-indoline sulfamides
obtained from indoline sulfochloride. The sulfochlorination of the
indolines and their nearest analogs (tetrahydro quinolines) has hitherto
not been described. 1-Acetyl-indoline (I) with chloro sulfonic acid was
shown to yield the 1-acetyl-indoline-5-sulfochloride (II) (Ref. 7). On
hydrolysis with hydrochloric acid, the 5-indoline sulfonic acid (III)
is obtained from (II): ✓

Card 1/3

Introduction of Substituents Into the Benzene Ring of Indole. VI. Synthesis of Sulfo Derivatives of Indole and Indoline (Ref. 1)

S/079/60/030/04/36/080
B001/B016



The position of the sulfo group is confirmed by the fact that the acid (III) reacts already in the cold with bromine water, and that in this solution the ion SO_4^{2-} occurs (Refs. 8, 9). By heating the chloride (II) with ammonium carbonate, the amide (IV) resulted. Compound (V) was formed on reaction of (II) with an aqueous dimethyl solution (67.2%), and (VI) by heating (II) with methyl aniline and sodium bicarbonate. By hydrolysis with hydrochloric acid, these N-acetyl-indoline sulfo amides (IV, V, VI) were converted to the corresponding indoline

Card 2/3

Introduction of Substituents Into the Benzene
Ring of Indole. VI. Synthesis of Sulfo Deriv-
atives of Indole and Indoline (Ref. 1)

S/079/60/030/04/36/080
B001/B016

sulfonamides (VII, VIII, IX). By heating with chloranil in xylene, these sulfonamides were converted to the indole sulfonamides. The yields of these compounds were: amide (X) 13.7%, amide (XI) 18%, amide (XII) 9.8% (Second Scheme). When comparing the behavior of the indolines with that of the o-toluidines in different reactions of electrophilic substitution it may be seen that, irrespective of an apparent analogy, these compounds behave differently in many substitution reactions. Examples are given and explained. There are 18 references, 8 of which are Soviet. ✓

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: May 11, 1959

Card 3/3

GRINEV, A.N.; VENEVTSEVA, N.A.; FRANCHUK, V.I.; TERENT'YEV, A.P.

Quinones. Part 31: Synthesis of tetrahydro-1,4-endomethy-
leneanthraquinones. Zhur.ob.khim. 30 no.6:1911-1914
Je '60. (MIRA 13:6)

1. Moskovskiy gosudarstvennyy universitet.
(Anthraquinone)

GRINEV, A.N.; ZAYTSEV, I.A.; VENEVTSEVA, N.K.; TERENT'YEV, A.P.

Quinones. Part 32: Synthesis of substituted 2,5-bis(amino)
-1,4-benzoquinones and 2-amino-,4-naphthoquinones. Zhur.ob.
khim. 30 no.6:1914-1918 Je '60. (MIRA 13:6)

1. Moskovskiy gosudarstvennyy universitet.
(Benzoquinone) (Naphthoquinone)

GRINEV, A.N.; MEZENTSEV, A.S.; TERENT'YEV, A.P.

Quinones. Part 33: Condensation of aryl naphthoquinones
with sodium enolates of acetoacetic and malonic esters and
their analogs. Zhur.ob.khim. 30 no.7:2306-2311 J1 '60.
(MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet.
(Naphthoquinone) (Acetoacetic acid)
(Malonic acid)

GRINEV, A.N.; FLORENT'YEV, V.L.; SHVEDOV, V.I.; TERENT'YEV, A.P.

Quinones. Part 34: Condensation of p-quinones with acetyla-
cetone imines. Zhur.ob.khim. 30 no.7:2311-2315 J1 '60.
(MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet.
(Pentanedione) (Benzoquinone)

GRINEV, A.M.; FLORENT'YEV, V.L.; TERENT'YEV, A.P.

Quinones. Part 35: Bromination of "acid complexes" of
3-benzoquinone by the Chelintsev method. Zhur.ob.khim.
30 no.7:2316-2317 J1 '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet.
(Benzouinone)

TERENT'YEV, A.P.; VIKTOROVA, Ye.A.; YENSEL'SON, B.M.; KOST, A.N.;
YERSHOV, V.V.

Inner complex compounds as contact insecticides. Zhur.ob.
khim. 30 no.7:2422-2427 J1 '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet.
(Complex compounds) (Insecticides)

S/079/60/030/008/002/008
B004/B064

AUTHORS: Kost, A. N., Terent'yev, A. P., Vinogradova, Ye. V.,
Terent'yev, P. B., Yershov, V. V.

TITLE: Addition of Aromatic Amines and Phenyl Hydrazine¹ to
2-Methyl-5-vinyl Pyridine 7

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 8,
pp. 2556 - 2562

TEXT: 2-methyl-5-vinyl pyridine reacts when heated with aniline in the presence of metallic sodium under the formation of 2-methyl-5-(2-phenyl aminoethyl)-pyridine (I):

$$\text{CH}_3\text{-C}_5\text{H}_3\text{N-CH=CH}_2 + \text{H}_2\text{NC}_6\text{H}_5 \xrightarrow{\text{Na}} \text{CH}_3\text{-C}_5\text{H}_3\text{N-CH}_2\text{CH}_2\text{NHC}_6\text{H}_5$$
 Similar reactions occur with ethyl aniline, o-, m-, and p-toluidine, o- and p-anisidine, with p-compounds reacting more easily. A low yield in the addition product was obtained with β -naphthyl amine. It was not possible to isolate the reaction product with p-phenylene diamine. A decrease in the basicity of the amino group reduces the capability of addition. While

Card 1/4

Addition of Aromatic Amines and Phenyl
Hydrazine to 2-Methyl-5-vinyl Pyridine

S/079/60/030/008/002/008
B004/B064

diphenyl amine, o-nitroaniline, indole, acetamide, and phthalimide re-
act with α -vinyl pyridine, no reaction took place with the β -vinyl
pyridine used by the authors. Nor did a reaction take place with aceto-
acetic ester, ethanol, butanol, phenol, and sodium bisulfite. A by-
product with a high boiling point, N,N-bis[2-(2-methylpyridyl-5)-ethyl]
-p-toluidine (structural formula 2) was obtained with p-toluidine. Its
structure could be proved a) by the lacking N-H absorption band in the
infrared spectrum, b) by the impossibility of carrying out acylation.
The N-nitroso compound was obtained from I with HNO_2 , which could be
reduced to the N-amino compound $\text{CH}_3\text{C}_5\text{H}_3\text{N}-\text{CH}_2\text{CH}_2\text{N}-\text{C}_6\text{H}_5$ (3). Compound 3

was also obtained by direct addition of phenyl hydrazine to 2-methyl-5-
-vinyl pyridine. Corresponding to a typical aryl hydrazine a re-arrange-
ment according to Fischer takes place in cyclohexanone under the forma-
tion of N-[2-(2-methyl pyridyl-5)-ethyl]-1,2,3,4-tetrahydrocarbazole (4).
The experimental part lists the synthesis of the following compounds:
2-methyl-5-(2-phenyl aminoethyl)-pyridine; 2-methyl-5-(N-formyl-2-phenyl
-aminoethyl)-pyridine; 2-methyl-5-(N-acetyl-2-phenyl aminoethyl)-pyridine;

Card 2/4

Addition of Aromatic Amines and Phenyl
Hydrazine to 2-Methyl-5-vinyl Pyridine

S/079/60/030/008/002/008
B004/B064

2-methyl-5-(N-benzoyl-2-phenyl aminoethyl)-pyridine; 2-methyl-5-(N-nitroso-2-phenyl aminoethyl)-pyridine; 2-methyl-5-(2-o-tolylaminoethyl)-pyridine and the respective N-acetyl compound; the corresponding m- and p-tolylamino compounds; 2-methyl-5-(2-o-anisylamino ethyl)-pyridine; the respective N-acetyl compound and the corresponding p-anisyl amino compounds; 2-methyl-5-(N-ethyl-2-phenyl aminoethyl)-pyridine; 2-methyl-5-[2-(N-p-nitrosophenyl-N-ethyl amino)-ethyl]-pyridine; 2-methyl-5-(2-β-naphthyl aminoethyl)-pyridine; 2-methyl-5-(N-amino-2-phenyl amino-ethyl)-pyridine; N-[2-(2-methyl pyridyl-5)-ethyl]-1,2,3,4-tetrahydro-carbazole. The majority of the substances synthesized are highly viscous oils. Experiments made at the Kafedra farmakologii Minskogo meditsinskogo instituta (Chair of Pharmacology of the Minsk Medical Institute) led to the finding that peritoneal injection of the hydrochlorides of these compounds in mice leads to the excitation of the parasympathetic nervous system (muscarine and nicotine effect). The toxicity (LD₁₀₀) is between 300 and 500 mg/kg live weight. Nitroso

groups in para position increase the toxicity by its five-fold. Iodo-methylates are more toxic than hydrochlorides. There are 4 non-Soviet references.

Card 3/4

Addition of Aromatic Amines and Phenyl
Hydrazine to 2-Methyl-5-vinyl Pyridine

S/079/60/030/008/002/008
B004/B064

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State
University)

SUBMITTED: July 15, 1959

Card 4/4

TERENT'YEV, A.P.; GRADBERG, I.I.; SIBIRYAKOVA, D.V.; KOST, A.N.

Pyrazoles. Part 9: New method of synthesizing pyrazolecarboxylic acids. Zhur. ob. khim. 30 no.9:2925-2931 S '60. (M.L.A 13:9)

1. Moskovskiy gosudarstvennyy universitet.
(Pyrazolecarboxylic acid)

TERENT'YEV, A.P.; GRACHEVA, R.A.; VOLKOVA, L.M.

Synthesis of substituted acids with the use of furan derivatives.

Part 3: Ethyl esters of α -hydroxy acids. Zhur. ob. khim. 30

no.9:2947-2949 S '60.

(MIRA 13:9)

1. Moskovskiy gosudarstvennyy universitet.

(Furaldehyde)

(Acids, Organic)

86504

S/079/60/030/011/010/026
B001/B066

5.3620

1153, 1306, 2209

AUTHORS: Terent'yev, A. P. and Gracheva, R. A.

TITLE: Sulfonation and Sulfonic Acids of Compounds Sensitive to
Acids. XXVIII. Sulfonation of the Compounds $R_1R_2C=CH_2$.
Geometric Isomerism of Unsaturated Sulfonic Acids

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 11, pp.3663-3667

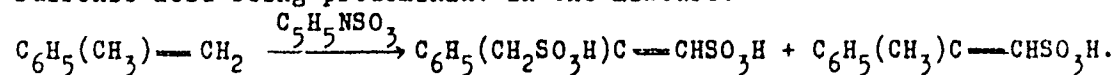
TEXT: Styrene is readily sulfonated not only by means of dioxane sulfotrioxide (Ref.2), but still more readily by pyridine sulfotrioxide; it has so far not been cleared which of the geometric isomers of ω -sulfonic acid is formed in this connection. Therefore, compounds of the type $R_1R_2C=CH_2$ (styrene, α -methyl styrene, α -chloro styrene, 1,1-diphenyl ethylene, α -vinyl naphthalene) were sulfonated, and several derivatives of styrene- and 1,1-diphenyl-ethylene-sulfonic acid were obtained. The authors then studied their behavior on irradiation by ultraviolet light. Sulfonation of styrene took place on heating with pyridine sulfotrioxide (at a molar ratio of 1 : 2) in a sealed ampul. It was possible only in the case of

Card 1/3

86504

Sulfonation and Sulfonic Acids of Compounds S/079/60/030/011/010/026
Sensitive to Acids. XXVIII. Sulfonation of B001/B066
the Compounds $R_1R_2C=CH_2$. Geometric Isomerism of Unsaturated Sulfonic
Acids

the amide (melting point $142^{\circ}C$), by irradiation of ω -styrene-sulfonic acid derivatives by ultraviolet light, to separate a second, lower-melting isomer (melting point $96^{\circ}C$), which apparently represents a less stable cis-isomer. The Raman and infrared spectra of the two amide forms of ω -styrene-sulfonic acid confirmed their different geometric structures (Ref.3). Also the potassium salt of this acid is isomerized on UV irradiation, but to a lower extent than the amide. Also α -chloro styrene behaved like styrene in sulfonation. Sulfonation of α -methyl styrene was conducted with pyridine sulfotrioxide, pyridine bis-sulfotrioxide, dioxane sulfotrioxide at different ratios. In all cases, a mixture of mono- and di-sulfonic acid of α -methyl styrene was separated, with the unsaturated di-sulfonic acid being predominant in the mixture.



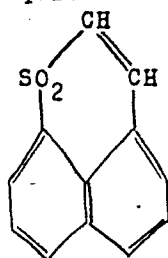
The sulfonic acid of 1,1-diphenyl ethylene could only be obtained by means of pyridine bis-sulfotrioxide; there are no isomers for this acid.

Card 2/3

86504

Sulfonation and Sulfonic Acids of Compounds S/079/60/030/011/010/026
Sensitive to Acids. XXVIII. Sulfonation of B001/B066
the Compounds $R_1R_2C=CH_2$. Geometric Isomerism of Unsaturated Sulfonic
Acids

Sulfonation of α -vinyl naphthalene with pyridine sulfotrioxide yielded,
quite unexpectedly, an unsaturated cyclic sulfone



owing to the presence of an active hydrogen in the
 α -position of the naphthalene ring. Only in the sulfonation
of styrene and 1,1-diphenyl ethylene, unsaturated mono-
sulfonic acids were obtained. The structure of the
resultant sulfonic acids was proved by oxidation with
potassium permanganate in alkaline medium (separation of
benzoic acid, not of sulfobenzoic acid). There are
4 references: 2 Soviet, 1 US, and 1 British.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State
University)

SUBMITTED: December 16, 1959

Card 3/3

GRINEV, A.N.; KHUN' SHCHI-TSZYUN'; TEREENT'YEV, A.P.

Synthesis of derivatives of furan, pyrrole, naphthofuran, and
benzindole. Zhur. ob. khim. 30 no.11:3668-3672 N'60.

(MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet.
(Furan) (Pyrrole) (Naphthofuran) (Benzindole)

TERENT'YEV, A.P.; GRACHOVA, R.A.; SIKURKO, O.P.

Synthesis of substituted acids via furan derivatives. Part 4:
Synthesis of γ -amino acids. Zhur. ob. khim. 30 no.11:3711-
3714 N'60. (MIRA 13:11)

1. Moskovskiy gosudarstvennyy universitet.
(Amino acids)

GRINEV, A.N.; KHUN' SHCHI-TSZYUN'; TERENT'YEV, A.P.

Bromination and azo coupling reactions in the series of naphthofuran
and benzindole derivatives. Zhur. ob. khim. 30 no.12:4030-4034 D '60.
(MIRA 13:12)

1. Moskovskiy gosudarstvennyy universitet.
(Naphthofuran) (Benzindole))

S/020/60/132/03/38/066
B011/B008

5.3100

AUTHORS: Potapov, V. M., Terent'yev, A. P., Corresponding Member
AS USSR

TITLE: On the Tautomerism of Amides ↑

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 3,
pp. 626-627

TEXT: When studying the rotatory dispersion of some derivatives of the optically active α -phenyl-ethyl amine in the ultraviolet spectral range, the authors obtained new data concerning the tautomerism of amides. For this purpose they used a simple variant of the photo-electric spectropolarimeter developed in their laboratory. It is well known that a tautomerism $R-\text{CONH}_2 \rightleftharpoons R-\text{C}(\text{OH})=\text{NH}$ occurs in the case of the amides of the carboxylic acids. A uniform opinion about the structure of the amides is lacking so far, in spite of numerous investigations by other scientists. In no case actually 2 amide forms were produced. The authors stated that the rotatory dispersion curves are only slightly varied at the transition from benzene to methanolic solutions for free

Card 1/3

On the Tautomerism of Amides

S/020/60/132/03/38/066
B011/B008

α -phenyl-ethyl amine (I), N-benzyl- α -phenyl-ethyl amine (II), as well as benzal- α -phenyl-ethyl amine (III). For N-benzoyl- α -phenyl-ethyl amine (IV), on the other hand, the digit sign of the rotation as well as the course of the dispersion curve are directly opposed to each other in benzene (Fig. 1 dashed lines) and in methanol (solid lines). In benzene, IV shows a similarity with II, in methanol, however, with III. The lactam form is apparently predominant in benzene, whereas the lactim form is predominant in methanol (compare data by Yu. N. Sheynker, Ref. 3). In agreement with the above interpretation, such an effect of the solvent is absent at the benzoyl-derivative of the amine II (Fig. 1, V), since it lacks the H-atom on the nitrogen, which would be capable of a tautomeric transition. For the above mentioned reasons, the authors tested again the differences of the melting points of the benzoyl- α -phenyl-ethyl amine from publications: 122°C from alcohol and 125°C from ligroin (Refs. 4,5). It appeared that the preparation recrystallized from heptane (melting point 128-129°C) is precipitated as a form with the melting point of 123°C after heating in diluted methanol at a cooling of the solution. If the melting is examined under the microscope, it can be seen that the substance molten at 123°C

Card 2/3

On the Tautomerism of Amides

S/020/60/132/03/38/066
B011/B008

solidifies again in spite of the slow temperature rise, and then melts again at 128°C. A transition between 2 tautomeric forms is apparently observed here for the first time; a labile lactim form (melting point 123°C) into a stable lactam form (128°C). The method discussed above will undoubtedly be useful for the study of other cases of tautomerism. There are 1 figure and 5 references, 1 of which is Soviet. 14

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V.
Lomonosova (Moscow State University imeni M. V.
Lomonosov)

SUBMITTED: February 15, 1960

Card 3/3

РСТАПОВ, В.М.; ТРОФИМОВ, Ф.А.; ТЕРЕНТ'ЙЕВ, А.П.

Spectrophotometric study of a ketimide-enamine tautomeric system.
Dokl. AN SSSR 134 no.3:609-611 S '60. (MIRA 13:9)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
2. Chlen-korrespondent AN SSSR (for Terent'yev).
(Tautomerism)

TERENT'YEV, A.P., otv.red.; ALIMARIN, I.P., red.; GEL'MAN, N.E., red.;
KLIMOVA, V.A., red.; KRESHKOV, A.P., red.; KUZNETSOV, V.I., red.;
LEVIN, E.S., red.; PODGAYSKAYA, Z.I., red.; RUKHADZE, Ye.G., red.;
TAL'ROZE, V.L., red.; TSUKERMAN, A.M., red.; SHEMYAKIN, F.M., red.;
SHEYNKER, Yu.N., red.; YERMAKOV, M.S., tekhn.red.

[Conference on organic analysis] Soveshchanie po organicheskomu
analizu. Tezisy dokladov. Moskva, Izd-vo Mosk.univ., 1961. 170 p.
(MIRA 14:4)

1. Soveshchaniye po organicheskomu analizu. 1961.
(Chemistry, Analytical--Congresses)
(Chemistry, Organic--Congresses)

5.4400

31090
S/195/61/002/004/005/008
E111/E585

AUTHORS: Keyyer, N.P., Boreskov, G.K., Rode, V.V.,
Terent'yev, A.P. and Rukhadze, Ye.G.

TITLE: Catalytic activity of organic semiconductors.
I. Polychelates

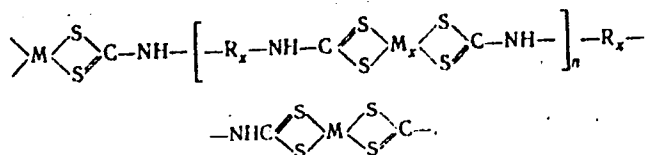
PERIODICAL: Kinetika i kataliz, v.2, no.4, 1961, 509-518

TEXT: The authors investigated various classes of organic polymers in order to establish the catalytic capacity of organic semiconductors and the relationship between their electrical conductivity and catalytic activity. The present work deals with polychelates of a given structure whose electrical conductivity varies by more than ten orders, depending on chemical composition. As regards chemical composition and structure the polychelates were of two types: 1) the sulphur atoms constitute the electron donor and, together with the metal, form the chelate group, which is connected with the radical by the =N-C group

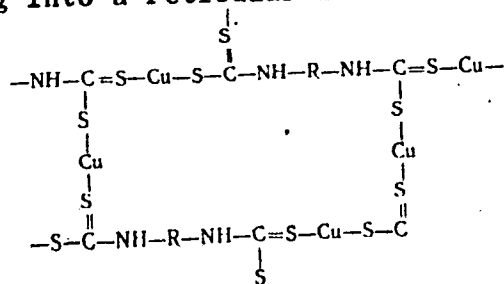
Card 1/4

Catalytic activity of ...

31070
S/195/61/002/004/005/008
E111/E585

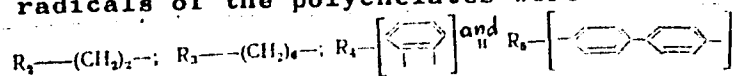


2) monovalent copper forms two coordination linear bonds
-S-Cu-S- evolving into a reticular structure



The organic radicals of the polychelates were

Card 2/4



Catalytic activity of

31090

S/195/61/002/004/005/008

E111/E585

The polychelates were synthesized through the interaction of equimolar aqueous solutions of the metal acetates with soda bis-dithiocarbamates $R(NH_2SSNa)$. The molecular weight of the polychelates was 53×10^3 to 67×10^3 . The activity of twelve Ni, Cu, Co, Zn and Cd polychelates was studied in the decomposition reaction of 93% pure hydrazine hydrate at temperatures from 74 to 104°C. The Ni, Cu and Co polychelates displayed the highest catalytic activity, 100 times greater than that of NiO and NiS semiconductor catalysts, the Ni polychelate R_5Ni (type 1) had the highest activity and remained stable even after exposure to air. Zn and Cd polychelates displayed no activity at 104°C. The organic radicals had marked and varied effects on the catalytic activity of the polychelates. The catalytic activity of Ni polychelates was affected most; the highest activity was displayed by Ni polychelates with the organic radical R_5 and by Cu polychelates with R_2 ; the activity of the Co polychelates was affected only slightly by the organic radical. Although the results do not disclose any relation between the volume electrical conductivity $\sigma_{23}^\circ (\text{ohm cm})^{-1}$ and the catalytic activity of the polychelates. The

Card 3/4

31090

Catalytic activity of ...

S/195/61/002/004/005/008
E111/E585

pronounced effect of the organic radical on catalytic activity indicates a dependence of such activity on the electron state of the metal, which is conditioned by the donor groups and the organic radical entering into the composition of the polychelate. It is suggested that the electron effect on catalytic activity will be better understood when more is known about the regularities in the change of the surface electrical properties of the polychelates. Acknowledgments are expressed to Z. V. Zvonkova, V. M. Vozzhennikov and L. I. Badzhadze for data on the electrical conductivity of the samples and valuable advice. There are two tables, 6 figures and 10 Soviet-bloc references.

ASSOCIATION: Institut kataliza SO AN SSSR Khimicheskii fakul'tet
MGU (Institute of Catalysts SO AS USSR Chemical
Faculty MGU)

SUBMITTED May 22, 1961

Card 4/4

TERENT'YEV, A.P.; RUKHADZE, Ye.G.; MOCHALINA, I.G.; RODE, V.V.

Synthesis of 2,6-diacetylpyridine. Zhur.VKHO 6 no.1:116-117
'61. (MIRA 14:3)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Pyridine)

TERENT'YEV, A.P.; POTAPOV, V.M.

At the current session of the International Commission on the
Nomenclature of Organic Compounds. Zhur.VKHO 6 no.3:343 '61.
(MIRA 14:6)

1. Chlen-korrespondent Akademii nauk SSSR (for Terent'yev).
(Chemistry, Organic—Nomenclature)

S/075/61/016/001/015/019
B013/B055

AUTHORS: Terent'yev, A. P., Syavtsillo, S. V., and Luskina, B. M.

TITLE: Organic Elemental Analysis by the Wet Ashing Method.
Report II. Rapid Determination of Silicon in Organic
Silicon Compounds

PERIODICAL: Zhurnal analiticheskoy khimii, 1961, Vol. 16, No. 1,
pp. 83-86

TEXT: In the present work, a rapid method for determining silicon in organic silicon compounds was developed. It is based on the previously (Ref. 1) used method of ashing organic or elemental-organic compounds by oxidation with a chromic-acid/sulfuric-acid mixture at 150°-160°C. The silicic acid residue is filtered off (Ref. 3), dissolved in concentrated alkali solution and finally analyzed for silicon by titration according to Šir and Komers (Ref. 5). The determination requires 1.5 h. In analysis of ethoxy- or chloro silanes (containing no radicals) heating with the acid mixture is unnecessary, since these compounds readily hydrolyze in aqueous alkali with formation of sodium silicate, which simplifies the

Card 1/2

Organic Elemental Analysis by the Wet Ashing
Method. Report II. Rapid Determination of
Silicon in Organic Silicon Compounds

S/075/61/016/001/015/012
B013/B055

procedure and reduces the time for one determination to 30 min. The method was tested with a number of pure organosilicon compounds (Table 1) and used for the determination of silicon in industrial ethyl polysiloxanes. The analytical results are in good agreement (Table 2) with the data obtained by the conventional method (Ref. 4). Examples of silicon determination without previous oxidation are listed in Table 3. In this case, the weighed samples were hydrolyzed with a 15% sodium hydroxide solution in a polyethylene vessel. In this type of compound, silicon and the hydrogen bound to silicon can be determined simultaneously in the same weighed sample (Ref. 7). The analyses were carried out by L. M. Kharchevnikova. A. P. Kreshkov and G. D. Nessonova are mentioned. There are 3 tables and 7 references: 6 Soviet and 1 Czechoslovakian.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 4, 1960

Card 2/2

OBTEMPERANSKAYA, S.I.; TERENT'YEV, A.P.; BUZLANOVA, M.M.

Quantitative determination of monoatomic alcohols by acrylonitrile .
Zhur.anal.khim.16 no.3:372-374 My-Je '61. (MIRA 14:6)

1. M. V. Lomonosov Moscow State University.
(Alcohols)
(Acrylonitrile)

TERENT'YEV, A.P.; LUSKINA, B.M.

Heteroorganic analysis by the "wet combustion" method. Report No.3:
Determination of carbon and nitrogen in nitro compounds from a single
sample. Zhur. anal. khim. 16 no. 4:462-464 J1-Ag '61.
(MIRA 14:7)

1. M.V. Lomonosov Moscow State University.
(Carbon—Analysis) (Nitrogen—Analysis) (Nitro compounds)

TERENT'YEV, A.P.; LUSKINA, B.M.; SYAVTSILLO, S.V.; Prinimala uchastiye:
KARABASHKINA, L.N.

Elemental organic analysis by the "wet combustion" method. Report
No. 4: Determination of carbon, silicon, and aluminum in organo-
aluminosiloxane polymers. Zhur.anal.khim. 16 no.5:635-638
S-O '61. (MIRA 14:9)

1. Lomonosov Moscow State University.
(Silicon organic compounds)

TERENT'YEV, A.P.; BUZLANOVA, M.M.; OBT~~EM~~PERANSKAYA, S.I.

Determination of phosgene in the presence of chlorine and
hydrogen chloride. Zhur.anal.khim. 16 no.6:743-744 11-D '61.
(MIRA 14:12)

1. M.V. Lomonosov Moscow State University.
(Phosgene)

S/138/61/000/011/005/007
A051/A126

AUTHORS: Lezhnev, N. N., Terent'yev, A. P., Novikova, I. S., Kobzeva, T. A.

TITLE: The chemical nature of the surface of carbon black

PERIODICAL: Kauchuk i rezina, ²⁰no. 11, 1961, 21 - 27

TEXT: The authors have developed a new method for the quantitative determination of certain oxygen functional groups present in carbon black, and have tested the validity of methods previously used. A rapid and accurate method for the determination of active hydrogen in carbon blacks, using an ether solution of the Grignard reagent, was also developed, in addition to a method for the alkalimetric titration of the acidic groups of the carbon blacks with caustic soda and sodium carbonate. By assuming that the caustic soda reacts with all the acidic groups and the sodium carbonate only with the carboxylic ones, the phenol and carboxylic groups in the carbon blacks were determined. The general nitrogen in the carbon black was determined by the Kjeldahl method. The latter is a variation of the method introduced by A. P. Terent'yev and B. M. Luskiniy. Combustion can be carried out in 4 hours, and chromic acid is used as the oxidation catalyst. Conclusions are drawn on the nature of the oxygen bound with certain carbon blacks

Card 1/3

S/138/61/000/011/005/007
A051/A126

The chemical nature of the surface of carbon black

from the developed methods and by comparing the obtained results with data of other non-Soviet authors, and data of carbon black investigation using the paramagnetic electron resonance method. However, a large portion of the oxygen in the channel black has not been identified. The most complete identification of oxygen was made for that bound with experimental carbon black of the XAΦ (KhAF) type. Data of the channel black analysis, both of the initial and of that containing chemically adsorbed neozone Д (D), Φ 2HA (F2NA) and also captax MET (MBT) led to the assumption that these substances react with oxygen-containing radicals of carbon black at the position of the weakest-bound hydrogen atom (RN-H and RS-H). It is pointed out that carbon black chemically interacts with various ingredients of rubber and probably with raw rubber or polymer radicals. Thus, the following are thought to be chemically active: 1) various oxygen-containing groups, 2) sulfur-containing compounds - in the case of carbon blacks, produced on the basis of petroleum and coal, 3) free radicals on the surface - non-coupled electrons of atoms of carbon and oxygen and possibly atoms of sulfur and nitrogen, bound by chemical bonds with carbon atoms of the carbon black crystalline lattice. The sulfur-containing groups are thought to have the structure $>C = S$ and $\rightarrow C - SH$. The active hydrogen is thought to be in the groups $-C \overset{O}{\underset{O}{\parallel}} - H$ and $\rightarrow C - O - H$. Re-

Card 2/3

The chemical nature of the surface of carbon black

S/138/61/000/011/005/007
A051/A126

sults obtained clarified the mechanism of interaction between the carbon black and accelerators of vulcanization and anti-oxident of the secondary aromatic amine type. A satisfactory correlation is derived in a comparison of the theory of polymerization and hydrocarbon oxidation with two cases investigated by the authors: Channel black processed with MBT; channel black processed with P2NA. There are 2 tables, 1 figure and 14 references: 6 Soviet-bloc and 8 non-Soviet-bloc. The references to the 3 most recent English-language publications read as follows: H. V. Drushel, J. V. Hallum, J. Phys. Chem., 62, no. 1, 110 (1958); G. Kraus, R. L. Collins, Rubb. World, 139, 219 (1958); M. Beroza, Analyt. Chem., 25, 177 (1958).

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (Scientific Research Institute of the Tire Industry)

Card 3/3

TERENT'YEV, A.P.; GRACHEVA, R.A.

Sulfonation and sulfonic acids of acidophobic compounds. Part 29:
Geometrical isomerism of unsaturated sulfonic acids. Synthesis of
unsaturated sulfones. Zhur. ob. khim. 31 no.1:217-219 Ja '61.
(MIRA 14:1)

1. Moskovskiy gosudarstvennyy universitet.
(Sulfonic acid) (Sulfone)

KAZITSYNA, L.A.; KUPLETSKAYA, N.B.; POLSTYANKO, L.L.; KIKOT', B.S.;
KOLESNIK, Yu.A.; TERENT'YEV, A.P.

Ultraviolet absorption spectra of alkyl imines of acetylacetone and
 β -hydroxynaphthaldehyde. Zhur. ob. khim. 31 no.1:313-323 Ja '61.
(MIRA 14:1)

1. Moskovskiy gosudarstvennyy universitet.
(Naphthaldehyde) (Acetone)
(Imines--Spectra)

POTAPOV, V.M.; TERENT'YEV, A.P.; SPIVAK, S.P.

Stereochemical studies. Part 10: Schiff bases from optically
active 2-aminobutane. Zhur.ob.khim. 31 no.7:2415-2419 J1 '61.
(MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Butane) (Schiff bases)

TERENT'YEV, A.P.; GRACHEVA, R.A.; VOLKOVA, L.M.

Preparation of substituted acids via furan derivatives. Part 5:
Synthesis of D, L-Proline. Zhur.ob.khim. 31 no.9:2826-2828 S '61.
(MIRA 14:9)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Proline) (Furan)

POTAPOV, V.M.; DEM'YANOVICH, V.M.; TERENT'YEV, A.P.

Stereochemical studies. Part 11. Amides of optically active
 α -phenylethylamine with substituted benzoic acids. Zhur.ob.khim.
31 no.9:3046-3050 S '61. (MIRA 14:9)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Ethylamine) (Amides) (Stereochemistry)

POTAPOV, V.M.; TROFIMOV, F.A.; TERENT'YEV, A.P.

Stereochemistry. Part 12: Tautomerism of the product of
condensation of (-) α -phenylethylamine with acetoacetic ester.
Zhur.ob.khim. 31 no.10:3344-3353 0 '61. (MIRA 14:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Ethylamine) (Acetoacetic acid) (Tautomerism)

TERENT'YEV, A.P.; MOGILYANSKIY, Ya.D.

Pyridine - cuprous chloride complex as a catalyst for autoxidation.
Part 2: Autoxidation of amines as a function of the substituents
in the aromatic nucleus. Zhur. ob. khim. 31 no.1:326-331 Ja '61.

(MIRA 14:1)

(Amines)

(Copper compounds)

(Oxidation)

GRINEV, A.N.; YERMAKOVA, V.N.; TERENT'YEV, A.P.

Synthesis of 2-alkyl-5-methoxygramine derivatives. Zhur.
ob. khim. 31 no. 2:490-495 F '61. (MIRA 14:2)

1. Moskovskiy gosudarstvennyy universitet.
(Inodle)

POTAPOV, V.M.; TEREENT'YEV, A.P.

Stereochemical studies. Part 8: Photoelectric spectropolarimeter and the rotatory dispersion of certain amines in the visible and ultraviolet. Zhur. ob. khim. 31 no.3:1003-1010 Mr '61. (MIRA 14:3)

1. Moskovskiy gosudarstvennyy universitet.
(Polariscope) (Amines—Optical properties)

POTAPOV, V.M.; TEREHT'YEV, A.P.

Stereochemical studies. Part 9: Spectropolarimetric detection of the tautomerism of amides. Zhur.ob.khim. 31 no.5:1720-1729 My '64.

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Amides) (Tautomerism)

GRINEV, A.N.; KHUN' SHCHI-TSZYUN'; TERENCEV, A.P.

Mannich bases in the series of derivatives of 5-hydroxynaphthofuran
and 5-hydroxybenzindole. Zhur.ob.khim. 31 no.6:1902-1906 Je '61.
(MIRA 14:6)

1. Moskovskiy gosudarstvennyy universitet.
(Naphthofuran) (Benzindole) (Mannich bases)

GRINEV, A.N.; YERMAKOVA, V.N.; MEL'NIKOVA, I.A.; TERENT'YEV, A.P.;

Quinones. Part 37: Condensation of p-benzoquinone with anilides
of β -aminocrotonic acids. Zhur.ob.khim. 31 no.7:2303-2306 J1
'61. (MIRA 14:7)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova.
(Benzoquinone) (Crotonic acid) (Anilides)

25320

S/020/61/138/005/020/025
B103/B220

15.8080

AUTHORS: Terent'yev, A. P., Corresponding Member AS USSR,
Mochalina, I. G., and Rukhadze, Ye. G.

TITLE: Polycondensation at the interface

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 138, no. 5, 1961, 1130-1131

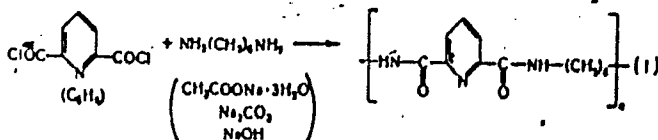
TEXT: The paper deals with the synthesis of polyamide from pyridine-2,6-dicarboxylic acid dichloride and hexamethylene diamine. The authors applied the method of interfacial polycondensation, and studied the properties of the polyamide. The above-mentioned method was suggested by E. L. Wittbecker and P. W. Morgan (Ref. 1: J. Polym. Sci. 40, No. 137, 289 (1959)), and is superior to the existing method of polycondensation in the melt. The most important factors influencing the yield, molecular weight, and viscosity are the nature of the organic solvents and emulsifiers used, the concentration of the reagents, and the stirring of the reaction mixture (R. G. Beaman et al., Ref. 6: J. Polym. Sci. 40, 137, 300 (1959)). The lutin-containing β -picoline fraction (residue obtained in the production of the preparation ftivazid (A. P. Terent'yev

Card 1/4

Polycondensation at the interface

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B103/B220

et al. Zhurn. Vsesoyzn. khim. obshch. im. D. I. Mendeleeva, 6, No. 1, 116 (1961)) was used as initial substance for synthesis. The synthesis was performed by stirring in a chemical test tube at room temperature



The above-mentioned acid dichloride was obtained by boiling the acid mentioned with thionyl chloride, and then dissolved in benzene. Freshly distilled hexamethylene diamine was dissolved in aqueous solutions of sodium acetate, sodium carbonate, or NaOH. The pH-values at which the polyamide was precipitated, were measured with an MN-5 (LP-5) tube potentiometer and amounted to 3, 7-8, and 10, respectively. If the two solutions were simply poured together, a polymer film formed on the interface, which could be extracted as a fiber with a small glass rod. A polymer precipitate forms in the entire solution while stirring. After filtration and washing with water it was separated as a white powder soluble in pyridine, concentrated formic, hydrochloric, acetic, and

Card 2/4

25320

S/020/61/138/005/020/025
B103/B220

Polycondensation at the interface

sulfuric acids as well as in dimethyl formamide and when heated in m-cresol. The polyamide could be purified only by reprecipitation with ether from pyridine solution. Its intrinsic viscosity was measured in concentrated H_2SO_4 and in dimethyl formamide by means of the Ubbelohde viscosimeter at 20°C and was found to be equal for all 3 pH-values mentioned. It amounted to 0.323 in H_2SO_4 with a polyamide concentration of 0.5 g/100 ml. Its logarithmic viscosity was calculated from the formula:

$$\eta_{log} = \ln \eta_{rel} / C = 0.560.$$

η_{intr} amounted to 0.033-0.202 for concentrations of 0.1-0.3 g/100 ml; η_{log} was 0.322-0.6°C for the same concentrations. The average molecular weight was estimated from Huggins' equation to be 20,000-30,000. The thermomechanical curve was measured by Kargin's balance [Abstracter's note: balance not stated]. The infrared spectrum showed the existing N-H and C=O bonds. The N-H frequency is 3352-3378 cm^{-1} , and the C=O frequency 1652 cm^{-1} . Since it contains functional groups which might give chelate nodes with metals, it was allowed to react with metallic salts.

Card 3/4

Polycondensation at the interface ²⁵³²⁰

S/020/61/138/005/020/025
B103/B220

Polycondensation was repeated in the presence of Fe^{II} salt, and a dark brown, rubber-like, viscous product was separated. There are 2 figures, 1 table, and 13 references: 9 Soviet-bloc and 4 non-Soviet-bloc. Two references to English-language publications are mentioned in the body of the abstract; the third one reads: P. Morgan, S. Kwolek (Ref. 5: J. Polym. Sci., 40, No. 137, 299 (1959)).

SUBMITTED: March 13, 1961

Card 4/4

25340

S/020/61/138/006/016/019
B103/B215

15 8150

11.2205

AUTHORS:

Terent'yev, A. P., Corresponding Member AS USSR, Rode, V. V.,
Rukhadze, Ye. G., and Filatov, E. S.

TITLE:

Determination of the molecular weight of chelate polymers

PERIODICAL:

Akademiya nauk SSSR. Doklady, v. 138, no. 6, 1961,
1361-1364

TEXT: The determination of the molecular weights of chelate polymers is difficult since they generally are solid, nonfusible, and insoluble substances (C. S. Marvel, M. Tarkay, Ref.1; J. Am. Chem. Soc., 79,6000 (1957)). V. V. Korshak and assistants (Ref.2; Vysokomolek. soed. 1,1764 (1959), Ref.3; ibid. 2,492 (1960), Ref.4; ibid. 498 (1960), Ref.4, ibid. 662 (1960)) assume that the molecular weight of metal polymers with different bis- β -diketones is not higher than 8000 - 10,000. It is known that chelate polymers contain three kinds of end groups in the molecule:

$ELgn \left[M - Lgn \right]_n M - LgnH$ (1); $HLgn \left[M - Lgn \right]_n M - A$ (2); and

$A \left[M - Lgn \right]_n M - A$ (3), where H is a hydrogen atom, H_2Lgn is a molecule

Card 1/7

25349

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B103/B215

Determination of the molecular ...

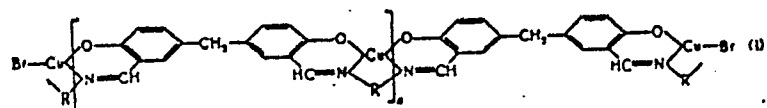
of the ligand containing 4 (and more) donor atoms, M is the ion of a bivalent metal, and A a monovalent anion. According to the conditions of polycondensation, polychelates with different end groups can be produced. An excess of metal salt causes the formation of anion groups at the ends of macromolecules. For case (3), the number of these groups (in %) is

$A = [M_{2A}/M_{pol}]100$; $M_{pol} = [M_{2A}/A]100$. The authors determined the molecular weights of chelate polymers produced formerly:

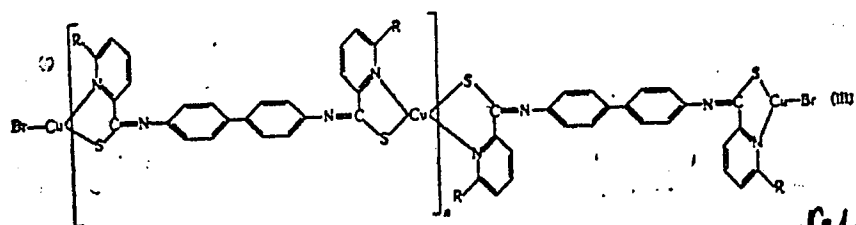
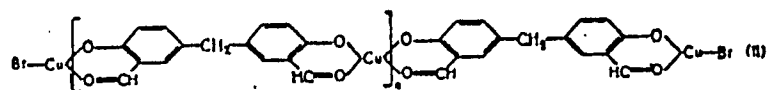
Card 2/7

СДЖУ
S/020/61/138/006/016/019
B103/B215

Determination of the molecular ...



где R = 2H —, —(CH₂)₂—, —(CH₂)₆— и o-C₆H₄—



где R = H — и CH₃ —.

Card 3/7

25340
S/020/61/138/006/016/019
B103/B215

Determination of the molecular ...

All these polymers were synthesized with cupric bromide tagged with Br^{82} . Table 1 shows the molecular weights determined, and the polymerization coefficients of the chelate polymers calculated on the basis of Eq. (2). The percentage of the anion (A) was calculated to be the ratio between the portion of the Br^{82} activity in the precipitate and the activity introduced. The molecular weights are 3-4 times higher than those obtained by other scientists. The authors explain the lower molecular weight of (III) by the different stability of the chelate node in the macrochain. In polymer (I) the molecular weight changes according to R. The authors proved this to depend upon the different oxidizabilities of the amines participating in the reaction. The higher the oxidizability of an amine, the faster the rupture of the chain and the lower the molecular weight of the polymer. Since amines also oxidize when left standing in solutions, the molecular weight of a polychelate decreases due to a longer period between the preparation of the solution of an easily oxidizable amine and its application. Such amines in this case were: hexamethylene diamine $((\text{I})\text{R} = -(\text{CH}_2)_6-)$ and o-phenylene diamine $((\text{I})\text{R} = \text{o}-\text{C}_6\text{H}_4-)$. The reaction with a newly prepared solution yielded the highest molecular weights.

Card 4/7

25340

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B103/B215

Determination of the molecular ...

When left standing for 3-5 hr, the molecular weight of the polymers was only 50% (in agreement with Ref.1). When left standing for 48 hr and more, low-molecular compounds are formed. With other structures $((I)R = 2H-$; $(I)R = -(CH_2)_2-$) the molecular weights remain constant even after 48 hr.

Polymers (I) may be produced by the method of nascent reagents and also from polymeric Schiff's bases. The average molecular weight is not affected by the method of synthesis. The authors reproduced their methods of determination with a monomer of analogous structure, namely copper salicylal ethylene diamine, to examine whether bromine anions are bound by the polymer surface. The actual molecular weights of polychelates would thus seem to be too low. The authors found that the copper complex, corresponding to theory, in fact does not contain radioactive bromine, i.e., binding did not take place. The method of determining the molecular weights of the above chelate polymers described by the authors yields stable, reproducible results. There are 2 tables and 9 references: 8 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication is given in the body of the abstract.

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Card 5/7